Author Index

Aggarwal, P.K. and Sinha, S.K. (New Delhi, India)
Performance of wheat and triticale varieties in a variable soil water environment. IV. Yield components and their association with grain yield 45
Ahmad, N., *see* Vine, P.N. and Ahmad, N.
Bacon, P.E. (Yanco, N.S.W., Australia)
Effect of nitrogen fertilization and rice stubble management techniques on soil moisture content, soil nitrogen status, and nitrogen uptake by wheat 75
Bell, M.J. (Kununurra, W.A., Australia), Muchow, R.C. (Winnellie, N.T., Australia) and Wilson, G.L. (St. Lucia, Qld., Australia)
The effect of plant population on peanuts (*Arachis hypogaea*) in a monsoonal tropical environment 91
Below, F.E., *see* Connell, T.R. et al.
Bergersen, F.J., *see* Evans, J. et al.
Coffin, R.D., *see* Sionit, N. et al.
Colbert, T.R. (Union City, Tenn., U.S.A.), Kang, M.S. (Baton Rouge, La., U.S.A.) Myers, O. (Carbondale, Ill., U.S.A.) and Zuber, M.S. (Columbia, Mo., U.S.A.)
General and specific combining ability estimates for pith cell death in stalk internodes of maize 155
Connell, T.R., Below, F.E., Hageman, R.H. and Willman, M.R. (Urbana, Ill., U.S.A.)
Photosynthetic components associated with differential senescence of maize hybrids following ear removal 55
Demagante, A.L., *see* Vander Zaag, P. and Demagante, A.L.
Eck, H.V., Mathers, A.C. and Musick, J.T. (Bushland, Tex., U.S.A.)
Plant water stress at various growth stages and growth and yield of soybeans 1
Ehleringer, J., *see* Harley, P.C. and Ehleringer, J.
Ellis, M.L., *see* Turnbull, L.V. and Ellis, M.L.
Evans, J., O'Connor, G.E. (Wagga Wagga, N.S.W., Australia), Turner, G.L. and Bergersen, F.J. (Canberra, A.C.T., Australia)
Influence of mineral nitrogen on nitrogen fixation by lupin (*Lupinus angustifolius*) as assessed by ^{15}N isotope dilution methods 109
Fischer, R.A. (Canberra, A.C.T., Australia) and Stapper, M. (Griffith, N.S.W., Australia)
Lodging effects on high-yielding crops of irrigated semidwarf wheat 245
Flower, D.J. and Ludlow, M.M. (St. Lucia, Qld., Australia)
Variation among accessions of pigeonpea (*Cajanus cajan*) in osmotic adjustment and dehydration tolerance of leaves 229
Foale, M.A., *see* Myers, R.J.K. et al.; *see also* Sinclair, T.R. et al.
Ghersa, C.M., *see* Satorre, E.H. and Ghersa, C.M.
Guiamet, J.J., *see* Martignone, R.A. et al.
Hageman, R.H., *see* Connell, T.R. et al.
Hammer, G.L., Hill, K. (Brisbane, Qld., Australia) and Schrodter, G.N. (Gatton, Qld., Australia)
Leaf area production and senescence of diverse grain sorghum hybrids 305
Harley, P.C. and Ehleringer, J. (Salt Lake City, Utah, U.S.A.)
Gas exchange characteristics of leaves of four species of grain amaranth 141
Harris, D. (Loughborough, Great Britain), Natarajan, M. and Willey, R.W. (Andhra Pradesh, India)
Physiological basis for yield advantage in a sorghum/groundnut intercrop exposed to drought. 1. Dry-matter production, yield, and light interception 259

Harris, D. (Loughborough, Great Britain) and Natarajan, M. (Andhra Pradesh, India)
Physiological basis for yield advantage in a sorghum/groundnut intercrop exposed to drought. 2. Plant temperature, water status, and components of yield 273
Hill, K., *see* Hammer, G.L. et al.
Hulugalle, N.R. (Ouagadougou, Burkina Faso)
Effect of tied ridges on soil water content, evapotranspiration, root growth and yield of cowpeas in the Sudan Savanna of Burkina Faso 219
Kang, M.S., *see* Colbert, T.R. et al.
Kirby, E.J.M. (Nedlands, W.A., Australia)
Book review of *Source and Sink during the Reproductive Period of Wheat: Development and its Regulation with Special Reference to Cytokinins*, by H. Herzog . 321
Lafitte, H.R., *see* Loomis, R.A. and Lafitte, H.R.
Lawn, R.J., *see* Sinclair, T.R. et al.
Leach, G.J., *see* Sinclair, T.R. et al.
Loomis, R.S. (Davis, CA, U.S.A.)
Book review of *Modelling of Agricultural Production: Weather, Soils and Crops*, by H. van Keulen and J. Wolf 319
Loomis, R.S. and Lafitte, H.R. (Davis, Calif., U.S.A.)
The carbon economy of a maize crop exposed to elevated CO_2 concentrations and water stress, as determined from elemental analyses 63
Ludlow, M.M., *see* Flower, D.J. and Ludlow, M.M.; *see also* Sinclair, T.R. et al.
Martignone, R.A. (Rosario, Argentina), Guiamet, J.J. (La Plata, Argentina) and Nakayama, F. (Rosario, Argentina)
Nitrogen partitioning and leaf senescence in soybean as related to nitrogen supply 17
Mathers, A.C., *see* Eck, H.V. et al.
Mortenson, D.A., *see* Sionit, N. et al.
Muchow, R.C., *see* Bell, M.J. et al.; *see also* Sinclair, T.R. et al.
Musick, J.T., *see* Eck, H.V. et al.
Myers, O., *see* Colbert, T.R. et al.
Myers, R.J.K., Foale, M.A., Smith, F.W. and Ratcliff, D. (St. Lucia, Qld., Australia)
Tissue concentration of nitrogen and phosphorus in grain sorghum 289
Nakayama, F., *see* Martignone, R.A. et al.
Natarajan, M., *see* Harris, D. and Natarajan, M.; *see also* Harris, D. et al.
O'Connor, G.E., *see* Evans, J. et al.
Patterson, D.T., *see* Sionit, N. et al.
Ratcliff, D., *see* Myers, R.J.K. et al.
Satorre, E.H. and Ghersa, C.M. (Buenos Aires, Argentina)
Relationship between canopy structure and weed biomass in different winter crops 37
Schrodter, G.N., *see* Hammer, G.L. et al.
Sinclair, T.R. (Gainesville, Fla., U.S.A.), Muchow, R.C. (Winnellie, N.T., Australia), Ludlow, M.M., Leach, G.J., Lawn, R.J. and Foale, M.A. (St. Lucia, Qld., Australia)
Field and model analysis of the effect of water deficits on carbon and nitrogen accumulation by soybean, cowpea and black gram 121
Sinha, S.K., *see* Aggarwal, P.K. and Sinha, S.K.
Sionit, N., Patterson, D.T., Coffin, R.D. and Mortenson, D.A. (Durham, N.C., U.S.A.)
Water relations and growth of the weed, goosegrass (*Eleusine indica*), under drought stress 163
Smith, F.W., *see* Myers, R.J.K. et al.
Stapper, M., *see* Fischer, R.A. and Stapper, M.
Turnbull, L.V. and Ellis, M.L. (Brisbane, Qld., Australia)
Effect of incandescent and fluorescent lighting used in photoperiod extension on the vegetative growth and floral development of four lines of pigeonpea 25

Turner, G.L., *see* Evans, J. et al.
Vander Zaag, P. and Demagante, A.L. (Manila, The Philippines)
Potato (*Solanum* Spp.) in an isohyperthermic environment. I. Agronomic management 199
Vine, P.N. and Ahmad, N. (Trinidad, The West Indies)
Yield development in cassava under different soil physical conditions 175
Willey, R.W., *see* Harris, D. et al.
Willman, M.R., *see* Connell, T.R. et al.
Wilson, G.L., *see* Bell, M.J. et al.
Zuber, M.S., *see* Colbert, T.R. et al.

Subject Index

Amaranthus
Gas exchange characteristics of grain amaranth 141
Analytical methods
Carbon economy of maize exposed to elevated CO_2 and water stress 63
Mineral nitrogen and nitrogen fixation of *Lupinus* 109
Arachis spp.
Physiological basis for yield advantage in a sorghum/groundnut intercrop exposed to drought. 1. Dry-matter production, yield, and light interception 259
2. Plant temperature, water status, and components of yield 273
Plant population in a tropical environment 91
Cajanus spp.
Incandescent and fluorescent lighting, effect on growth and floral development 25
Variation in osmotic adjustment and dehydration tolerance 229
Canopy
Relationship between canopy structure and weed biomass in winter crops 37
Carbon dioxide dynamics
Carbon economy of maize exposed to elevated CO_2 and water stress 63
Gas exchange characteristics of grain amaranth 141
Photosynthetic components associated with senescence of maize following ear removal ... 55
Climate, effects of
Modelling of Agricultural Production: Weather, Soils and Crops (Book review) 319
Plant population, effect on *Arachis* in a tropical environment 91
Solanum in an isohyperthermic environment. I. Agronomic management 199
Combining ability
GCA and SCA estimates for pith cell death in maize 155
Eleusine spp.
Water relations and growth of goosegrass under drought stress 163
Fertilization, *see* Nutrient dynamics
Glycine spp.
Field and model analysis of water deficits on carbon and nitrogen accumulation by soybean, cowpea and black gram 121
Water stress and growth of soybeans 1
Nitrogen partitioning and leaf senescence in soybean 17
Growth regulators
Source and Sink during the Reproductive Period of Wheat: Development and its Regulation with Special Reference to Cytokinins (Book review) 321
Intercropping
Physiological basis for yield advantage in a sorghum/groundnut intercrop exposed to drought. 1. Dry-matter production, yield, and light interception 259
2. Plant temperature, water status, and components of yield 273
Irrigation, *see* Water regime, effects of
Lighting
Incandescent and fluorescent lighting effects on growth and floral development of pigeonpea 25
Lodging
Combining ability estimates for pith cell death in maize 155
In irrigated semidwarf wheat 245

Lupinus
Influence of mineral nitrogen on nitrogen fixation 109
Maize, *see Zea mays*
Management practices, effects of
Canopy structure and weed biomass, relationship in winter crops 37
Cassava yield under different soil conditions 175
Nitrogen fertilization and stubble management effect on soil moisture, nitrogen status, and nitrogen uptake by wheat 75
Plant population effect on *Arachis* in a tropical environment 91
Solanum in an isohyperthermic environment. I. Agronomic management 199
Tied ridges, effect on soil water content, evapotranspiration, root growth and yield of cowpeas 219
Manihot spp.
Yield in cassava under different soil conditions 175
Medicago spp.
Relationship between canopy structure and weed biomass in winter crops 37
Modelling
Field and model analysis of water deficits on carbon and nitrogen accumulation by soybean, cowpea and black gram 121
Modelling of Agricultural Production: Weather, Soils and Crops (Book review) 319
Nitrogen, *see* Nutrient dynamics
Nutrient dynamics
Carbon and nitrogen accumulation by soybean, cowpea and black gram, field and model analysis of water deficits 121
Mineral nitrogen, influence on nitrogen fixation by *Lupinus* 109
Nitrogen fertilization and stubble management, effect on soil moisture, nitrogen status, and nitrogen uptake by wheat 75
Nitrogen partitioning and leaf senescence in soybean 17
Nitrogen and phosphorus, concentration in sorghum 289
Oryza spp.
Effect of nitrogen fertilization and stubble management on soil moisture, nitrogen status, and nitrogen uptake by wheat 75
Pea, pigeon, *see Cajanus* spp.
Pests, weeds and diseases
Canopy structure and weed biomass, relationship in winter crops 37
Eleusine water relations and growth under drought stress 163
Pests, weeds and diseases
Pith cell death in maize, combining-ability estimates for 155
Phaseolus spp.
Field and model analysis of water deficits on carbon and nitrogen accumulation by soybean, cowpea and black gram 121
Photoperiod
Effect of incandescent and fluorescent lighting on growth and floral development of pigeionpea 25
Photosynthesis
Photosynthetic components associated with senescence of maize following ear removal ... 55
Population density, effects of
Canopy structure and weed biomass, relationship in winter crops 37
Arachis in a tropical environment 91
Productivity
Modelling of Agricultural Production: Weather, Soils and Crops (Book review) 319

Reproduction
Source and Sink during the Reproductive Period of Wheat: Development and its Regulation with Special Reference to Cytokinins (Book review) 321
Ridging, *see* Management practices, effects of
Root growth
Effect of tied ridges on soil water content, evapotranspiration, root growth and yield of cowpeas 219
Secale spp.
Relationship between canopy structure and weed biomass in winter crops 37
Senescence
Leaf area production and senescence of sorghum 305
Nitrogen partitioning and leaf senescence in soybean 17
Photosynthetic components associated with senescence of maize following ear removal ... 55
Soil conditions
Cassava yield under different soil conditions 175
Modelling of Agricultural Production: Weather, Soils and Crops (Book review) 319
Solanum
in an isohyperthermic environment. I. Agronomic management 199
Sorghum spp.
Leaf area production and senescence of sorghum 305
Nitrogen and phosphorus concentrations in sorghum 289
Physiological basis for yield advantage in a sorghum/groundnut intercrop exposed to drought. 1. Dry-matter production, yield, and light interception 259
2. Plant temperature, water status, and components of yield 273
Stalk rot, *see* Pests, weeds and diseases
Triticum spp.
Canopy structure and weed biomass, relationship in winter crops 37
Lodging in irrigated semidwarf wheat 245
Nitrogen fertilization and stubble management, effect on soil moisture, nitrogen status, and nitrogen uptake by wheat 75
Wheat and triticale in a variable soil water environment. IV. Yield components and grain yield 45
Source and Sink during the Reproductive Period of Wheat: Development and its Regulation with Special Reference to Cytokinins (Book review) 321
Variety trials
Cajanus variation in osmotic adjustment and dehydration tolerance 229
Incandescent and fluorescent lighting, effect on growth and floral development of pigeonpea 25
Leaf area production and senescence of sorghum 305
Nitrogen and phosphorus concentration in sorghum 289
Photosynthetic components associated with senescence of maize following ear removal ... 55
Solanum in an isohyperthermic environment. I. Agronomic management 199
Wheat and triticale in a variable soil water environment. IV. Yield components and grain yield 45
Vigna spp.
Effect of tied ridges on soil water content, evapotranspiration, root growth and yield of cowpeas 219
Field and model analysis of water deficits on carbon and nitrogen accumulation by soybean, cowpea and black gram 121
Water regime, effects of
Carbon economy of maize exposed to elevated CO_2 and water stress 63

Cajanus, variation in osmotic adjustment and dehydration tolerance 229
Field and model analysis of water deficits on carbon and nitrogen accumulation by soybean, cowpea and black gram 121
Lodging in irrigated semidwarf wheat 245
Nitrogen fertilization and stubble management, effect on soil moisture, nitrogen status, and nitrogen uptaken by wheat 75
Physiological basis for yield advantage in a sorghum/groundnut intercrop exposed to drought. 1. Dry-matter production, yield, and light interception 259
2. Plant temperature, water status, and components of yield 273
Tied ridges effect on soil water content, evapotranspiration, root growth and yield of cowpeas 219
Water stress and growth of soybeans 1
Water relations and growth of *Eleusine* under drought stress 163
Wheat and triticale in a variable soil water environment. IV. Yield components and grain yield 45
Water stress, *see* Water regime, effects of
Winter crops
Relationship between canopy structure and weed biomass in winter crops 37
Zea mays
Carbon economy of maize exposed to elevated CO_2 and water stress 63
Combining ability estimates for pith cell death in maize 155